

# M2 internship: OpenLabFrame software development

**Duration: 6 months**

## **Description of the environment:**

The Turing Center for Living Systems (CENTURI) is an interdisciplinary research center located in Marseille, France. CENTURI aims to develop an integrated interdisciplinary community to decipher the complexity of biological systems by understanding how biological function emerges from the organization and dynamics of living systems. The project federates 20 teaching and research institutes in biology, physics, mathematics, computer science, engineering and focuses on research, education and engineering, 3 missions that make interdisciplinarity their core principle.

## **Description of the host team:**

The CENTURI multi-engineering platform was created to provide expertise for academic research in the areas of image processing, bioinformatics, optics/biophotonics, mechatronics, microfluidics, data management and neuroscience. Our engineers are here to assist and advise the CENTURI community with their day-to-day research questions and/or participate in longer-term projects.

## **Description of the internship project:**

The Multi-Engineering Platform is looking for an M2 intern for a software development internship.

The main project of the internship is the development of the OpenLabFrame, a motorized frame with an interchangeable head for task automation. The development is based on open technologies: Arduino and CNC shield for the control of the motors, RaspberryPi for the general control of the frame, etc. The idea is to have a frame allowing a multitude of tasks: automatic photo and video taking, micro-piping, moving objects, etc.

The frame being now functional, the work will concentrate on a better control of the engines and the management of the tasks as well as on the graphic interface (if time allows it).

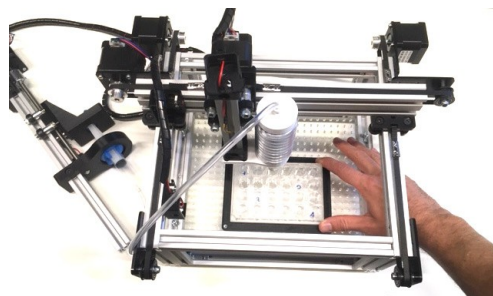
From a more technical point of view the development is based on :

- Code in Python, GUI development in Python (Kivy, Qt or other). Development of a multi-threading GUI appreciated.
- The LabThings library (<https://github.com/labthings>)
- Reading gcode with Universal Gcode Sender

Depending on the progress of the project, the intern could also contribute to other projects of the multi-engineering platform requiring software development.

The internship will be co-supervised by Mathias L  chelon (research engineer in mechatronics) and Thomas Boudier (research engineer in image analysis and software development).

Subject to mutual interest, possibility of hiring as a research engineer within the multi-engineering platform after the internship.



## **Expected profile:**

Master's degree in computer science and/or electronics, good knowledge of Python programming. Curiosity, motivation, autonomy. Ability to work in a multidisciplinary team.

**Keywords :** Python, Gcode, GUI, Qt, RaspberryPi, open source

## **Contact :**

Mathias L  chelon: [mathias.lechelon@univ-amu.fr](mailto:mathias.lechelon@univ-amu.fr),

Thomas Boudier: [thomas.boudier@univ-amu.fr](mailto:thomas.boudier@univ-amu.fr)